

1420 E. 6th Avenue P O Box 200701 Helena, MT 59620-0701 May 28, 1997

Environmental Quality Council, Capitol Building, Helena 59620. Montana Fish Wildlife and Parks.

Resource Assessment

Fisheries Division

Regional Information Officers

Hatchery Managers

Giant Springs Heritage State Park Commission, c/o Sydne Abernathy, 1127 4th Ave. North, Great Falls, MT 59401.

Cascade County Historical Society, 1400 1st. Ave. North, Great Falls, MT 59401.

Cascade County Commissioners, Room 11, Courthouse Annex, Great Falls, MT 59401.

Great Falls City Council, P.O. Box 5021, Great Falls, MT 59403.

David F. Brown, Source Giant Springs Inc., P.O. Box 2996, Great Falls, MT 59403-2906. State Library.

Russel Country Sportsmen, P.O. Box 282, Great Falls MT 59403.

Walleyes Unlimited, 230 Riverfront Lane, Great Falls MT 59404.

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Jim Jenson, Montana Environmental Information Center, P.O. Box 1184, Helena MT 59624.

Janet Ellis, Montana Audubon Council, P.O. Box 595, Helena, MT 59624.

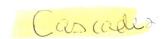
Montana Wildlife Federation, Box 1175, Helena, Mt 59624.

State Historical Preservation Office (SHPO), P.O. Box 201201, Helena, MT 59620-1201. George Ochenski, P.O. Box 689, Helena, MT, 59624.

Ladies and Gentlemen:

Montana Fish, Wildlife and Parks proposes a project at Giant Springs Trout Hatchery to protect the water supply and fish in the hatchery from becoming exposed to the whirling disease parasite. To implement this project a collection vessel will be installed in the spring with necessary piping installed to convey the water to the hatchery. This project would eliminate whirling disease from entering the hatchery water supply.

The current water supply is open and would allow the whirling disease agent to invade fish inside the hatchery. The attached Environmental Assessment discusses the proposed project in detail along with alternatives considered.



Any questions on this project should be addressed to the undersigned. Anyone wanting a public meeting on this proposal should also contact the undersigned. All comments should be forwarded by July 5, 1997.

In addition to the recipients listed above, this Environmental Assessment has been posted on the state Electronic Bulletin Board.

Sincerely;

Thurston Dotson Fisheries Division

(406) 444-2447

WATER SUPPLY PROTECTION FOR GIANT SPRINGS HATCHERY

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1 - USFWS Letter to State Historic Preservation Office

Under the Montana Environmental Policy Act, is an Environmental Impact Statement (EIS) needed for the proposed action? No.

Due to the scope and nature of this project, it will not have a significant impact upon the human environment, and the preparation of an EIS under MEPA is not required. See EA narrative Section 7.0, Summary and Recommendations.

Note: This EA was prepared jointly under MEPA and NEPA, the National Environmental Policy Act. Montana Fish, Wildlife &Parks is conducting the NEPA review on behalf of the U.S. Fish and Wildlife Service, (USFWS) Federal Aid Division, Denver, Colorado. The USFWS is the decision-maker with authority to determine whether a Finding of No Significant Effect may be made under NEPA, or that an EIS is required. See EA narrative Section 3.2.B, MEPA and NEPA.

DEPARTMENT OF FISH, WILDLIFE AND PARKS

1420 E 6th Ave, PO Box 200701 Helena, MT 59620-0701 (406) 444-2535

ENVIRONMENTAL ASSESSMENT

Project	Title	Water	Supply	Protection	for	Giant	Springs	Trout	
110,000		Hatche							
Division	n/Burea	u <u>Fis</u> l	neries/	Hatcheries					
Program_	Hatche	ries							
Descript	cion of	Proje	ect <u>See</u>	Section I r	page	4			

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Terrestrial & aquatic life and habitats				Х		
2. Water quality, quantity & distribution				х		
3. Geology & soil quality, stability & moisture				х		
4. Vegetation cover, quantity & quality				х		
5. Aesthetics			x			page 5-7
6. Air quality			х			page 14
7. Unique, endangered, fragile, or limited environmental resources				Х		
8. Demands on environmental resources of land, water, air & energy			х			pages 12-14
9. Historical & archaeological sites			х			pages 5-7, 15

POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

			T T		T	
	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Social structures & mores				х		
2. Cultural uniqueness & diversity				х		
3. Local & state tax base & tax revenue			х			page 14
4. Agricultural or industrial production			P	Х		
5. Human health				х		
6. Quantity & distribution of community & personal income				х		
7. Access to & quality of recreational and wilderness activities				х		
8. Quantity & distribution of employment				х		
9. Distribution & density of population & housing				х		
10. Demands for government services				х		
11. Industrial & commercial activity			х			page 14
12. Demands for energy			Х			page 13-15
13. Locally adopted environmental plans & goals				х		,
14. Transportation networks & traffic flows				х		

Other groups or agencies contacted or which may have overlapping jurisdiction <u>USFWS</u>, <u>COE</u>, <u>SHPO</u>

Individuals or groups contributing to this EA <u>Bruce Chaney</u> Thurston Dotson, Dave Todd
Recommendation concerning preparation of EIS <u>Due to the scope an nature of this project</u> , it will not have a significant impact upon th human environment, and the preparation of an EIS under MEPA is not required.
EA prepared by : Bruce Chaney, Thurston Dotson, Bobbi Keeler
Date: May 28, 1997.

WATER SUPPLY PROTECTION FOR GIANT SPRINGS TROUT HATCHERY

ENVIRONMENTAL ASSESSMENT

1.0 PURPOSE OF THE PROPOSED ACTION

The purpose of this project is to develop an enclosed water supply system for the Giant Springs Trout Hatchery within the adjoining Giant Springs.

2.0 NEED FOR THE ACTION

The action is needed to safeguard the water supply system from contamination by the whirling disease parasite so that the hatchery can continue to produce and stock disease-free fish that supply 25% of the trout and salmon distributed statewide by Montana Fish, Wildlife & Parks (FWP).

3.0 BACKGROUND

Giant Springs Trout Hatchery is located on the banks of the Missouri River near the City of Great Falls. The sole water source for the hatchery is Giant Springs. Water from Giant Springs flows a distance of approximately 130 feet directly into the Missouri River. Giant Springs is an open, free-flowing spring originating from the Madison formation. Its open water source makes it readily available to large numbers of waterfowl, aquatic mammals and other birds. It is also possible for fish from the Missouri River to enter the confines of the spring.

The existing water intake for the hatchery is not secure since the water is withdrawn from the general spring pool. (See Appendix A - Figure 1.) Correcting this situation is the purpose of the proposed action and is the subject of this Environmental Assessment (EA).

Modifications to the discharge ends of the existing raceways and replacing existing drain valves are also needed to prevent water from the Missouri River entering the hatchery through these sources. These improvements are categorically excluded under both the Montana Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA). Therefore, they are not discussed in detail in this EA.

In December 1994, Whirling Disease was discovered for the first time in Montana in the upper reaches of the Madison River, a tributary of the Missouri River. FWP assumed that three large reservoirs on the Missouri (Canyon Ferry, Holter, and Hauser) would slow the advance downstream for several years. Unfortunately, the establishment of the disease has been discovered in Prickly Pear Creek and in the Missouri River farther downstream at Cascade. These locations place the disease within 50 miles upstream of the Giant Springs facility, and there are no obstacles such as lakes or reservoirs in this portion of the river to slow the spread of the disease. (See Appendix A - Figure 2.)

Whirling disease is a parasitic infection of trout and salmon by the myxosporean protozoan *Mxyobolus cerebralis*. The parasite infects the cartilage and can cause deformities of the skeleton and erratic behavior in the form of tail chasing or whirling. Heavy infection of young fish can cause high mortality. The disease has a two host life cycle. Myxosporean spores are released into the aquatic environment when infected fish die and decompose or are consumed by predators or scavengers. The spores are ingested by the tubifex worm where they develop into the actinosporean Tractinomyxon, which is the infectious stage for live fish.

The worms release the infectious form of the parasite into the water where it enters fish through epithelial of the skin, fins, or gills. Or, the fish can be infected directly by consuming the worms when they are producing the infectious stage. The organism then invades the cartilage of the fish and in time returns to the spore state encased in the bone and awaits their release to start the cycle all over again.

Composition of the substrate within Giant Springs would indicate an environment suitable for the tubifex worm, an important host in the life cycle of the whirling disease spore. The disease could be spread to the fish within the Giant Springs Hatchery by wild fish or avian contamination of the water supply. Should an inadvertent infection occur there would be the potential to accidentally spread the disease by hatchery distribution.

Giant Springs hatchery is one of nine operated by FWP's Fisheries Division. Annually, the hatchery typically produces 75,000 Yellowstone Cutthroat, 40,000 Kokanee and over 800,000 rainbow for stocking in support of fishery management projects.

3.1 Location

The Giant Springs Hatchery is located along the banks of the Missouri River, near the City of Great Falls, Montana. It is legally described as located in Cascade County, in Section 33, Township 12 North, Range 4 East.

The hatchery lies on the banks of the Missouri River between two dams. Black Eagle Dam lies upstream approximately 1.5 river miles, and Rainbow Dam lies downstream approximately .75 river miles. The Giant Springs lies within the boundaries of Giant Springs/Heritage State Park, which is overseen by FWP's Region 4 Parks Division. The Region 4 headquarters is located across the road from and nearly adjacent to the State Park and Hatchery complex.

3.2 Laws, Goals, Directives, Interrelationships

A. Fisheries and Hatcheries Management Authorities

The Montana Legislature enacted Sections 87-1-201(3), MCA, which grants FWP "...the exclusive power to spend for the protection, preservation, and propagation of fish..." Additionally, Section 871-221(3) provides for "...construction, maintenance, operation, upkeep, and repair of fish hatcheries...for the protection and propagation of fish..."

In 1992, FWP conducted a strategic planning process. Five agency goals were adopted as a result of this process. Goal B is to "Provide increased opportunities for public enjoyment of Fish, Wildlife and Parks resources..."

B. MEPA and NEPA

FWP must comply with laws and implementing rules for MEPA and NEPA. Through this EA, FWP is concurrently complying with MEPA, NEPA, and state and federal requirements for historic preservation as described below in *Section 3.2.C.*

MEPA, under which public participation and this EA process is occurring, requires state agencies to perform an environmental analysis for projects and other major actions of state government significantly affecting the quality of the human environment. State agencies prepare EA's to determine whether a project will have a significant effect on the environment. If the agency determines that a project will not have a significant impact, the agency may issue a Decision Notice and proceed based upon the results of the EA. If the agency determines that a project will have a significant impact that is not otherwise mitigated, the agency will prepare a more detailed environmental impact statement (EIS) before making a decision to proceed.

NEPA, under which public participation and this EA process is concurrently occurring, is applicable because Federal Aid in Sport Fish Restoration funds (Wallop-Breaux) are proposed to be used for the project. The state agency, FWP, conducts the NEPA review on behalf of the U.S. Fish and Wildlife Service (USFWS), Federal Aid Division, in Denver, Colorado. However, the USFWS is the decision-maker and has the authority to either issue a Finding of No Significant Impact (FONSI) based upon the results of the EA, or require that an EIS be prepared.

C. Historic and Cultural Resource Protection

Under both state and federal historic preservation statutes and regulations, FWP and the USFWS, respectively, are required to determine whether the proposed project will adversely affect an historic structure or property. If FWP determines that the project will not adversely affect such a property, then the project may proceed as designed. However, if FWP determines that the project will adversely affect such a property, we must enter into a memorandum of agreement (MOA) with the federal and state historic review agencies to implement mitigation measures.

As this EA explains in detail under *Section 6.10, Historic and Cultural Resources*, FWP believes that this project will impact historic resources and is proposing appropriate mitigation measures. The resource to be impacted is an historic rock wall built in 1934 by CCC/WPA.

Two of the applicable statutes that are addressed by this EA include:

 Section 22-3-424, MCA, duties of state agencies for identifying and preserving historic properties; and

Section 106, National Historic Preservation Act of 1966.

3.3 Issue Scoping

FWP has held a number of meetings and discussed the proposed project with citizens and government officials. Both MEPA and NEPA, and the state and federal historic preservation processes, require scoping or public involvement. This EA document reflects comments received from the public during these scoping processes.

Prior to and during the 1997 Session of the Montana Legislature, FWP discussed the potential threat of whirling disease to the hatchery with the public and elected officials. A request for funding of this project was approved by the Legislature and Governor in April 1997, following the four-month legislative process including public review of FWP budgets and projects including this one.

Public meetings were also held locally during that time. FWP officials from Helena including the Administrator of the Parks Division and personnel from the Fisheries Division, and FWP Region 4 personnel in Great Falls held several meetings with the Giant Springs/Heritage State Park Commission, the Source Giant Springs water bottling company, and the consulting engineer who has prepared options and cost estimates. The two meetigs were held: one on Oct. 10, 1996 and another on Jan. 16, 1997. The meetings served the dual purpose of scoping sessions. The following issues were discussed:

- the whirling disease threat to the Missouri River, Giant Springs, the Giant Springs Hatchery, and implications to stocking fish statewide;
- possible solutions and various alternatives for protecting the water source for the hatchery;
- the need to protect Giant Springs and preserve it in as natural a condition as possible;
- potential impacts to historic and cultural aspects of the site; and
- protecting the water source for the Source Giant Springs water bottling business, and ensuring continued, unaffected delivery of water to them as per pre-existing water rights and an easement for a water transmission line. (See Section 6.5, Economics.)

The Montana State Historic Preservation Office (SHPO) and five Indian tribes were also consulted due to potential impacts of the project on historic and cultural resources at Giant Springs. (This is further discussed under Section 6.10, Historic and Cultural Resources.)

Officials within Cascade County will also be notified for any pertinent construction and work permits or licenses that are needed from local governmental agencices.

Because Wallop-Breaux funding will also be used in this project, the USFWS, Federal Aid Division, Denver, has been contacted and visited the site on April 30, 1997.

4.0 DECISIONS TO BE MADE/SCHEDULE

The following schedule lists decisions to be made, including the environmental review and public involvement processes for MEPA, NEPA, and Section 106 of the Historic Preservation Act of 1966.

Early June 1997

Draft MEPA/NEPA EA document advertised and distributed for public review

June 1997 and ongoing Concurrently, continue consultation with SHPO, USFWS, and the NPS

Advisory Council regarding Section 106 historic resources compliance,

including review of draft Memorandum of Agreement.

July 1997 FWP addresses comments, revises EA if appropriate, and issues a

MEPA Decision Notice (*or decides that an EIS must be prepared).

Late August 1997 or earlier NEPA document sent to USFWS along with Grant proposal for request

for Federal Aid funding of project. USFWS sends draft FONSI to agencies for comment, and approves the project (*or decides that an

EIS must be prepared).

September 1997 MOA entered into with USFWS, SHPO, and Advisory Council. USFWS

approves Grant.

Consulting engineer produces plans and specifications.

FWP, Consultant or contractor obtains necessary permits for project.

October 1997 60-day construction begins.

December 1997 Construction substantially complete.

* <u>Note</u>: If either FWP or the USFWS determines that an EIS must be prepared, a much more lengthy process would be undertaken and a number of months would be added to this schedule.

5.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

FWP considered six alternative viable methods of protecting the water supply and raceways. These ranged from no action, to various methods for treating the water, to protecting the intake through the proposed action. Viable alternatives include the following:

- 1. Protected intake within the existing spring--Proposed Action
- 2. Well water supply
- 3. Ultraviolet disinfection
- 4. Ozone disinfection
- Filtration
- 6. No Action

Note: In addition to the viable alternatives, several alternatives within the **Protected Spring Water Supply option,** were studied, commented on, and dismissed from further consideration for various reasons. Some of these reasons included: covering a "boil" or up welling that had historical significance; size of the piping was too large to adequately disguise it; location of the intake would have precluded excessive removal of natural bedrock; and placement of intake would have made it visible above the water surface of the spring.

5.1 Protected Spring Water Supply -- Proposed Action

A. Protected Spring Water Supply

The objective of this alternative to develop a water withdrawal system within the existing spring area that will provide a water source to the hatchery that is secure from contamination by the whirling disease parasite. The existing intake is not secure since it withdraws water from the general spring pool.

Boils or upwellings are apparent on the surface of the spring in a number of areas. The fractures, where the boils originate, were surveyed and the flows coming from them were measured as accurately as possible in gallons per minute. Boils G, H, and I are located near the center of the spring along the northern portion of the rock retaining wall. They were identified as the best ones for capturing within the concrete collection box and piping to the existing intake line going to the hatchery. Flows from G, H, I, collectively, are approximately 15,600 gallons per minute.

The water within the proposed concrete collection box would have no contact with the general spring water and contamination would thereby be prevented. The box would have to be covered to prevent any potential contamination by birds. A sealed conduit is required to transport the water from the collection box to the existing hatchery supply line. (See Appendix A - Figure 3.)

The hatchery utilizes approximately 9,000 gpm for hatchery operations. Engineering consultants recommend capturing approximately 50% more water than needed to be sure of getting an adequate supply. No additional water would be used than what is currently being withdrawn from the spring, and any excess water collected would be returned to the spring via an overflow in the collection vault. This would insure that the amount of water flowing from the spring would not be affected.

When the project is completed, the water pressure inside the collection box is expected to be higher than in the outside pool, creating a positive hydrologic pressure gradient inside the collection vessel. The vessel cannot be perfectly sealed, but water will flow outward under the pressure gradient, preventing any potential contaminants or parasites from entering the collection vessel. The tubifex worms and all stages of the whirling disease parasites released by the worms cannot move against the gradient established by the enclosed collection vessel.

The flow of water will be interrupted to the outside raceways and inside hatchery during the period of construction. Fish in outside raceways will have been stocked or relocated into indoor raceways in the hatchery. The pool level of the spring will be lowered during construction to accommodate the necessary hand work inside the spring itself.

Anticipated construction features include the following:

1. A precast concrete collection vessel will be installed over fissures in the spring bottom. The vessel will be fitted with an engineered relief plug located on the surface to provide protection from excess pressure inside the vessel. The vessel will be covered by approximately 2 feet of water and camouflaged with a rock aggregate so the growth of native aquatic vegetation and algae would further disguise it.

- 2. A control gate at the outlet of the collection vessel will permit water flow into the hatchery supply line to be temporarily interrupted for maintenance, construction or emergencies.
- 3. Fully enclosed conduits will be installed to convey water from the collection vessel to the existing underground lines near the shore. The lines will consist of two, 24" metal pipes resting on the bottom of the spring and exiting it where the hatchery intake is now located. The pipes will enter a large collection vault located underneath the existing sidewalk, and connect the existing supply line to the hatchery with collected spring water. The collection vault will be designed to return any water not used in the hatchery operations, up to 9,000 gpm, back to the spring pool. The pipe will be camouflaged with a rock aggregate. As with the inlet collection vessel, over time, natural vegetation would help to further hide the lines.
- 4. The existing hatchery water intake in the spring will be abandoned and plugged. The abandoned intake will be removed and the retaining wall will be rebuilt as close as possible to historical conditions.
- 5. A flexible membrane liner will be attached to the walls of the collection vessel and extended out from the vessel along the solid rock bottom of the spring. Approximately 2 feet of gravel and larger rocks will be placed on top of the membrane as ballast to hold it securely in place and seal the vessel off from the remainder of the spring. This liner seal will permit the water inside the vessel to essentially pressurize and have a water level higher than the outside pool. Leakage beneath the liner will occur, but all flow will be outward away from the vessel, thereby preventing WD contamination of the hatchery water supply.

In order to construct the new intake, the spring water pool level will be temporarily lowered. A hand placed berm was built from local rock along the north and west sides of the spring in 1984 to raise the pool level 1.5 feet above its prior level. This berm is to be breached near the proposed collection vessel location. Removed rock will be stockpiled and utilized in the reinstallation of the berm. Heavy construction equipment will be prohibited from working in the spring pool itself. Some surface re-shaping of the rock ledges, inside the pool where the collection vessel is to be placed, will occur to ensure secure placement of the vessel. After the vessel is installed, the dam will be returned to its original condition and level. A precedence for this kind construction technique was established in 1984 at another hatchery. In that project, a spring collection vessel was installed to provide positive hydrologic pressure inside the vessel, and the spring was returned to its original level.

The existing intake structure will be removed. The new intake lines will exit the rock wall where the current intake structure is located, then enter a large vault located underneath the existing sidewalk area and outside the spring. The vault will also contain an overflow which will return any water not used for hatchery operations to the spring pool. The outlet pipe from the vault will then be connected to the existing water line going to the hatchery. The location where the pipe exits the spring will be the same as it is for the existing intake structure on the east side of the spring. This section of the rock wall containing the spring has been rebuilt, some time in the past, in a step fashion from concrete. The concrete wall along the east side and the rock wall along the south side of the spring will be rebuilt in the style of the original wall constructed by the CCC/WPA in the 1030's.

After the new intake structure has been installed, flow measurements will be measured from fissures and boils to determine if they have been affected. Features will be designed into the collection system to ensure the current flows from the spring will not be affected.

Potential adverse impacts to the rock wall and mitigation measures are described in greater detail in *Section 6.10, Historic and Cultural Resources*.

B. Protection of Outside Raceways and Settling Basin

In conjunction with this EA's Proposed Action, Protected Spring Water Supply, FWP will protect the outside raceways and settling basin. As noted previously, modifications to the discharge ends of the existing raceways and replacing existing drain valves are needed to prevent water from the Missouri River entering the hatchery through these sources. Although these improvements are categorically excluded under both MEPA and NEPA, they are discussed here to better inform the reader about all of the work to be done at the hatchery to protect it from WD.

As stated previously, the hatchery lies on the banks of the Missouri River between two dams. Black Eagle Dam lies upstream approximately 1.5 river miles and Rainbow Dam lies downstream approximately .75 river miles. (See Appendix A - Figure 4.)

In 1989, Montana Power Company completed work on modifications to Rainbow Dam. These modifications included the installation of a "rubber dam" which made it possible for Montana Power to raise the pool level of the Missouri River between the two dams approximately 1.5 feet.

During normal operations of the raceways at Giant Springs Hatchery, water flows from the lower ends of the raceways to a sump and from there drains to the river through a series of culverts. These culverts extend from the sump out into the the river (Rainbow Dam Pool).

Before the water level of the river was raised, the culverts were partially exposed. River water would back up into the sump area but would still be below the level of the bottom of the raceways. Wooden dam boards separated the raceways from the sump area, and continue to do so now that the water level is higher.

With the raising of the river level, river water backing up through the culverts is now approximately 10 - 12 inches above the floor of the raceways. Leakage around the dam boards occurs both in the raceways and in the settling basin that is used when the raceways are cleaned. These outlets need to be sealed to prevent contamination from the Missouri River.

The discharge ends of the raceways and settling basin will be sealed by concrete in such a way as to still permit normal operation of the raceways and settling basin. New drain valves, that let water from the raceways drain to the settling basin during cleaning operations, would also be installed to prevent water from backing up into the raceways from the settling basin.

These raceways were constructed during the hatchery renovation in 1984. Sealing the ends with concrete would present the safest and most cost effective method of protecting the raceways and settling basin from the Missouri River.

5.2 Well Water Supply

Deep wells could potentially be utilized to provide a safe water source for the hatchery. A geologic study by the Montana Bureau of Mines and Geology evaluated the potential for wells. The

Bureau recommended that wells be drilled west of main spring pool area near an area where other springs are evident at the base of the cliff rock. Two potential options were presented: artesian wells located on the abandoned road at the base of the cliffs; or non-flowing wells located just above the cliffs. (See Appendix A - Figure 5.)

The geological report emphasized that the amount of water that would be available from any well may vary widely depending on whether or not the well encounters major fractures or caves in the Madison formation. The Madison is a limestone formation that is believed to be the water source for Giant Springs. The Madison is overlain by the Kootenai and Swift formations, with the Kootenai sandstone formation being the dominant formation above the Madison.

The Bureau's report recommended that a smaller test well be drilled and the formation tested before attempting to drill any large production wells. In general, there is no guarantee the wells will be successful or produce the amount of water required. One well may be a great producer, but the next well may not.

The top of the Madison formation is about 250 feet below ground surface along the river, or 300 feet below the ground surface at the top of the cliff above the road. The report estimated probable required well depths of 340 to 410 feet depending on well location, and a 100 foot penetration into the Madison formation. Water withdrawn from wells in this area should not adversely affect the springs in the main pool area in the park, but they may affect the springs at the base of the cliff and the well for FWP's headquarters building.

Ideally, naturally flowing artesian wells are more desirable than wells that require pumps. A minimum of two wells is recommended in order to guarantee the water supply.

If two wells are utilized, each well should be capable of producing 8,000 to 10,000 gpm in case problems were to develop with one well. Naturally flowing wells with this flow capacity are extremely unlikely unless the well were to actually penetrate a very productive underground cave.

The static water level for a well in the Madison formation is projected to be about 35 feet above the ground surface at the edge of the river. At least 15 to 20 feet of head would probably be required to deliver the water to the top of the packed towers at the hatchery. This leaves only about 15 feet of head available to produce the required water from the Madison formation. A naturally flowing well capable of producing the amount of water required at the head required is very unlikely. This would indicate that the Madison can be a relatively low yield water source unless the well penetrates a very large fracture or cave.

The old road along the river is about the only suitable location for trying to develop naturally flowing wells, but it is not a good location from an environmental standpoint. There is only limited space available in this area for construction of mud pits and other related construction activity. The area is subject to possible flooding caused by ice jams and the old road is part of the river's edge trail the Great Falls community is developing. This location would also interfere with the development of the Lewis and Clark Interpretive Center that the U.S. Forest Service is currently building on the bluff above the road.

Pumped wells along the old road would probably utilize less energy for pumping than wells located above the cliff, but the disadvantages offset the energy advantage. The best location appears to be a flatter area above the cliff just north of FWP's headquarters building.

For estimating purposes, four 18-inch diameter wells, each approximately 200 feet apart, would be constructed with each well capable of producing 3,000 gpm. Pump houses and a generator building would have to be constructed in this same area. A 30-inch pipeline would have to be constructed from the wells, across the gulch on the east side and then extended through the main developed park area to the existing supply line.

The wells would have to penetrate very good fractures or caves in order to produce 3,000 gpm. The probability of success in obtaining wells with this capability is very uncertain. More wells may be required. A small test hole and further geologic analysis is definitely recommended before proceeding with any wells.

5.3 <u>Ultraviolet Disinfection</u>

Ultraviolet irradiation is an effective method of disinfection for many types of organisms, but the process does not work well in turbid waters where the organisms may be shielded by solids or debris. A USFWS report on whirling disease Fish and Wildlife Leaflet 17, "Salmonid Whirling Disease", indicated that filtration to remove or reduce suspended solids followed by ultraviolet irradiation is an effective method of controlling the parasite. The water at Giant Springs has very low turbidity and 95% transmittance, and as such should be ideal for ultraviolet disinfection without filtration pretreatment. Precautions would have to be taken, however, to prevent entrance of debris such as leaves or plants.

The amount of ultraviolet radiation required to kill the whirling disease parasite (*Mxyobolus cerebralis*) has not been specifically determined. Additional data is lacking and extensive study is recommended. One manufacturer indicated that an ultraviolet dose of 35,000 - 40,000 uMwatt sec./cm2 would be adequate. However, ultraviolet irradiation may not be effective against the WD parasite when it's in the mature spore stage, but may be effective against the triactinomyxin or TAM stage. UV systems may not be 100% effective in preventing the disease (L. Harris, Colorado Department of Natural Resources, and T. Dotson, Montana FWP, personal communication).

Ultraviolet systems operate by passing the water by a series of lamps that generate ultraviolet radiation. The lamps themselves are similar to neon light tubes and are placed inside quartz sleeves and are not directly in contact with the water. The number of tubes, spacing of the tubes, and detention time of the water passing by the tubes establishes the radiation intensity delivered to the water.

Ultraviolet systems consume a significant amount of electrical power and require regular maintenance and lamp replacement. The lamps lose their radiation capacity with time and must ultimately be replaced. Lamps would cost \$40.00+ each, and there would be 360 lamps in the unit. Lamp replacement would be a significant operating factor.

Another operating factor related to ultraviolet operation is fouling of the surrounding quartz tube. Any fouling of the tubes reduces the amount of radiation transmitted and impairs its disinfection

efficiency. Scaling due to highly mineralized water, such as at Giant Springs, also reduces the efficiency of the tubes, hence their effectiveness, and increases costs because of the necessity for frequent tube replacement. This system would be very large in size and would require a separate structure to house the unit.

5.4 Ozone Disinfection

Ozone is an extremely strong oxidizing and disinfecting agent and may be more effective at killing a broader range of organisms than ultraviolet radiation. A manufacturer recommended a dose of 2 mg/l for this application. However, extensive study and more data would be needed before this application could be used.

Ozone is generated by passing oxygen, or air containing oxygen, through an electric arc. This is accomplished in a dielectric tube. Only a relatively small percentage of the oxygen is actually converted to ozone. The conversion process is much more efficient if the feed gas is pure oxygen rather than ordinary air, although either source can be utilized. The air or oxygen feed supply must be: free of dust, oil and any other particulates, and water vapor; close to ambient temperature; and at a pressure suitable for ozone generation. Any moisture in the system will form nitric acid in the dielectric cells and greatly shorten the life span of the tubes.

An ozone generation system for the hatchery would have to produce approximately 206 pounds of ozone per day at the maximum design flow of 8,600 gpm. Primary system components would include:

- 1. Compressors with after coolers
- 2. Pressure swing adsorption oxygen generators
- 3. Ozone generators
- 4. Ozone contact chamber
- 5. Ozone off gas destruct system

Gas leaving the ozone generators contains oxygen in addition to ozone. The gas would be injected into the water through fine bubble diffusers located at the bottom of a deep counter current contact basin. The contact basin would have a water depth of about 20 feet deep and provide about 8 minutes of detention time.

The ozone residual would be expected to rapidly decay and not adversely affect the hatchery water supply. Excess gas that is not absorbed by the water would have to be collected and passed through a ozone destruct system before being vented or recycled. Ozone is very deadly and cannot be vented directly into the atmosphere.

An ozone generator system is more complex than an ultraviolet system and would require more operation and maintenance. In order to have adequate reliability, each of the key system components should have a back up in place so that the maximum day ozone production can be maintained with one unit out of service. As with the ultraviolet system, the ozone generating unit would be too large to fit in any existing structure and a separate housing unit would be required.

5.5 Filtration

Filtration is another method of removing parasites and other contaminants from water. The whirling disease parasite spore is reported to be in the range of 8 microns in size. Conventional filtration is not considered to be 100% reliable and as a result, disinfection is typically required following filtration.

Filters are available that can remove very small microorganisms and even specific molecules and viruses. Depending on the size of the particle or organism to be removed, these processes include nanofiltration, electrodialysis, and reverse osmosis. The whirling disease parasite is on the large end of these processes and at the smallest end of conventional filtration. Cartridge filters are a form of conventional filtration that can filter out this size of organism.

Cartridge filters utilize replaceable filter elements (cartridges) to strain the organisms from the water. The cartridges are simply removed and replaced once they become so dirty that the pressure drop through the cartridges exceeds about 20 psi. Approximately 348 cartridges are required for a flow of 8,600 gpm. The cartridges cost approximately \$275.00+ and their useful life depends on how much debris is in the water. Pressure filters are also recommended which would add an additional loss of 5-10 psi pressure loss to the system.

This type of system would require significant electrical power for pumping since the combined pressure drop through the pressure filters and the cartridge filters is significant.

5.6 No Action

Giant Springs Hatchery would continue to receive water from Giant Springs as it presently does. No structures would be placed to protect the current water supply or raceways from whirling disease. The hatchery would continue to operate normally until it became infected, at which time operations would cease.

6.0 AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES

None of the potential alternatives will have any impact on the following social and environmental resources:

Soils, including Prime or Unique Farmlands
Climate
Population of Great Falls or the surrounding area
Housing in Great Falls or the surrounding area
Industrial and commercial development in the area
Transportation related facilities or roads
Economic or social profile of people living in the area
Undeveloped or vacant land in the vicinity of Giant Springs
Other construction projects
Floodplains
Wild and scenic rivers

Threatened or Endangered species Coastal zones Agricultural or productive areas Odor Source Giant Springs Bottling Company Lewis and Clark Interpretive Center

Some of the alternatives affect to some degree the following environmental resources and social issues:

6.1 Topography

The well option is the only alternative that has any potential for permanently changing the topography. The proposed wells would be located on a terrace and hillside above the river.

This terrace and hillside would have to be graded and widened in some places to accommodate pump houses and an access road. As such, the well alternative would have a small impact on the general appearance and topography of the area. None of the other alternatives should permanently affect the topography of the area.

6.2 Geology

The well alternative could impact the hydro-geological characteristics of the area. Wells would not be expected to impact the main spring pool area in the park or the large underwater spring out in the river. The wells could eliminate the springs currently flowing from the base of the cliff below the proposed wells and impact the well currently being utilized to supply water to the FWP headquarters building. None of the other alternatives should impact the geology of the area.

6.3 Water Quality

None of the alternatives are expected to change the quality of the water in the Madison formation from which the springs flow. Water quality to the fish hatchery, however, will be improved by the proposed alternative. The risk of spreading whirling disease to other areas of the state will be reduced.

The well option would provide the required water quality needed for the hatchery. Disinfection and filtration options cannot be counted on to ensure the needed water quality, especially within the time that is available to protect the system. These technologies would require further testing to ensure that their application to this situation would be successful.

Construction activities can increase the risk of surface water contamination due to erosion. Proper construction procedures shall be maintained at all times to minimize the risk of erosion. All water removed by dewatering operations or surface runoff will be treated to remove excess sediment prior to discharge to the river system.

This project will be submitted for consideration to the Corps of Engineers (COE) for authorization under Section 404 of the Clean Water Act for a 404 permit. The COE conducts an independent review of the project impacts. Any mitigation determined to be necessary by this review will be performed at the FWP's expense.

6.4 Water Supply

The well option could affect the water supply to the springs that currently flow from the base of the cliff and well supplying the FWP headquarters building. None of the other alternatives are expected to impact the total quantity of water flowing in the main spring pool area or the underwater spring in the river.

6.5 Economics

A. Source Giant Springs

The protected water supply option would not adversely affect the economic operations of the Source Giant Springs water bottling business. This proposed action would actually enhance their operation by supplying them with a water supply that is not exposed to surface contamination from birds and animals.

FWP's obligations to the company include the following. First, the company has a pre-existing water right for the withdrawal of 200gpm of water from Giant Springs. The quantity is small enough that it does not affect hatchery operations.

Water for the company is initially collected through the same intake as FWP hatchery water. At a point part way between the springs and the hatchery, the company has a water line that connects to FWP's water line. From that point, the company pipes water eastward across FWP property to a pump house off-site. The company has a pre-existing easement for their water line. The easement was obtained years ago when Montana Power Company still owned what is now FWP property. Montana Power Company originally had granted an easement to a meat packing company, which in turn granted it to Source Giant Springs.

The company has been, and will continue to be, involved with deliberations about the project. FWP will cooperate with the company to ensure that only minimal disruption occurs during the construction process. Minimal shut-down time will occur when both ends of the water line that feeds the hatchery and Source Giant Springs are temporarily blocked.

B. Other Economic Considerations

With the no action alternative, eventual WD infection would result in closing the hatchery facility, and in a corresponding economic loss not only to the Great Falls area, but also to the general economy of the State of Montana. More detailed information is presented in *Section 6.12*, *Recreation*.

6.6 Noise

Construction will cause short term noise impacts on the area for all alternatives. Noise impacts can be mitigated to some degree by requiring the construction equipment to have mufflers in good operating condition, but some noise is unavoidable. No long term impact due to noise are anticipated.

6.7 Solid Waste

Construction activities may result in additional waste and debris which will be removed and buried at an approved landfill. Materials expected to be removed and wasted include broken concrete and asphalt plus paper and other miscellaneous debris generated by construction. Materials should be removed and taken to a landfill site as soon as possible. The overall quantity of waste will be relatively small and there would not be significant impacts on the landfill disposal facility.

6.8 Energy

Fossil fuels will be expended by equipment during the construction process. The quantity of fuel is expected to be minuscule and the overall impact on the resource is not expected to be significant.

All alternatives would require electrical energy for pumping. Alternatives utilizing disinfection will consume additional energy. The protected spring option will consume the least amount of energy. The ozone disinfection and filtration options would consume the most amount of energy.

6.9 Wetlands

The well option could impact the existing wetlands at the base of the cliff by drying up its water supply. This wetland area was constructed to replace another wetland that was removed to make room for the hatchery's waste pond. If wells were selected and the natural springs dried up, the impact could be mitigated by pumping water into the wetland area to replace the natural source. None of the other alternatives would impact any wetlands.

6.10 Historic and Cultural Resources

A. Proposed Alternative

The proposed activity will be confined to the Giant Springs area and immediately outside the spring at one location. The area has been extensively altered over the years to provide access, public utilization and hatchery operations. All areas that will be disturbed by this project, with the exception of the collection vessel inside the spring, have been extensively altered within the past 10-15 years.

The Montana State Historical Preservation Office (SHPO) has been contacted, along with the USFWS Federal Aid staff and the USFWS Regional Archaeologist in Denver, Colorado. Attached is

a letter from the USFWS to the SHPO, describing the proposed project, consultation with interested persons, and the proposed project's potential impact on cultural resources. (See Appendix B-1.)

As stated in SHPO's response to USFWS, "We concur in your determination that Giant Springs in eligible for the National Register of Historic Places under Criterion A as a traditional cultural property important to the people of Great Falls and under Criterion C for stonework representative of Civilian Conservation Corps/Works Progress Administration construction work. If, however, the wall is being rehabilitated in accordance with the Secretary of the Interior's 'Standards for the Treatment of Historic Properties,' a conditional finding of no adverse effect may be appropriate"...

Because the project will adversely affect an historic property, SHPO has conditionally agreed to enter into an MOU provided the entire spring wall is restored as mitigation. The wall will be rebuilt, included that portion on the east side which was extensively change in 1984, in the style of it's historical appearances utilizing existing material to the extent possible. As the plans and project develops SHPO will review and comment on plans at the 30, 60 and 90 percentile benchmarks to assure their expectation of the final product is being met. A copy of the draft MOU is included. (See Appendix B-2).

B. Other Alternatives

All of the alternatives could potentially disturb some cultural resources. Most of the area has been previously disturbed, but some resources may be encountered in trenches even though the land surface has been disturbed. The well option with its longer pipeline to the hatchery would have the greatest potential of crossing relatively undisturbed land and encountering cultural resources.

It is important to recognize that under state law, FWP is responsible for taking into consideration a projects affect on historic resources. The No Action alternative constitute an adverse effect on the historic rock wall because the wall would be allowed to deteriorate.

6.11 Parklands

The hatchery shares the spring site with a popular State Park. The protected spring alternative directly affects the main park attraction visually, aesthetically, and culturally.

As such, all construction will have to be carefully done in a manner that is compatible with park uses and be aesthetically pleasing. Great care will have to be taken to protect the main resource attraction. No heavy construction equipment will be used in the main spring pool. The new concrete inlet vessel and pipeline will be laid in place from the shoreline by large cranes. Coordination with Region 4 Parks Division will be an integral part of the construction process. As noted previously, the Heritage Park Commission has also been closely advised and consulted with in finalizing the best options that are available.

6.12 Recreation

A. Giant Springs State Park

Giant Springs is a popular tourist attraction with visitation ranging from 150,000 to 290,000 people visiting the park and hatchery annually. The park area is utilized for picnics, fishing, and general recreation. Construction will have to be accomplished in a manner that is compatible with all uses of the park including hatchery visitation. The park is primarily used during the summer; however, substantial visitation occurs year around. Construction is proposed to begin in the fall of 1997, after the Labor Day holiday, and is anticipated to last approximately six weeks. The protected spring option would have the greatest affect on the viewing area of the spring itself since work must be done in the spring pool. Other alternatives would cause some disturbance in the area, but for the most part the park and spring area can be kept open to visitors.

Under the well option, construction of permanent pump houses and generator buildings along the old road would probably have a negative impact on people using the river's edge trail system. Also, wells would be subject to damage and possible contamination by flooding of the river, unless protective measures were taken. This option could also visually and physically affect the Lewis and Clark Interpretive Center that is currently being built.

Under the "No Action option" the hatchery would be forced to continue operations without any safeguards in place. It is inevitable that whirling disease will make its way down to Giant Springs and the hatchery. Once infected, the hatchery would be forced to close and dispose of all fish on station. Not only would this action affect the fish management program for the state, but it could also seriously affect the visitation of the park itself. The fish hatchery plays a very important part in drawing the public to this area and without it a loss of revenue to the Park Division would be certain.

B. Statewide Fisheries Program

Giant Springs Hatchery currently produces 25% of the total numbers of trout and salmon planted in the state. On average, over the last six years, Giant Springs Hatchery annually plants 72 bodies of water statewide. The loss of this production would seriously affect the overall fish management program. Among the many important area fisheries served by the hatchery are Canyon Ferry, Holter, and Hauser Reservoirs.

Besides playing a very important role in the fisheries management plan of the state, the Giant Springs Hatchery contributes toward the economic benefit, in angling dollars, to the local economy as well as to other communities in the surrounding area and those in other parts of the state. Fishing pressure surveys on 38 of the waters planted by this hatchery indicated that 126,337 **resident** angler days and 16,019 **nonresident** angler days were spent on those waters for an economic value of nearly \$6.5 million.

6.13 Air Quality

There will be short term impacts on air quality during construction as a result of the burning of fossil fuels by construction equipment. This impact is minor.

6.14 Summary of Environmental Consequences by Alternative

The following table summarizes for each alternative the environmental consequences discussed above See 6.14, Summary of Environmental Consequences by Alternative, on the following page.. For purposes of the table, the most critical of the environmental resources were selected for inclusion in the table. The overall assessment shown at the bottom of the table is a numerical score showing the impacts that could be expected to result from the various alternatives.

The ratings are based on the following assessments:

- ++ the alternative exceeds standards for the environmental resource
- + the alternative meets standards
- 0 the alternative has no effect or is neutral
- the alternative does not meet standards
- -- the alternative has serious defecits

6.14 Summary of Environmental Consequences by Alternative

SELECTED ENV. RESOURCES	Alternative 1 Proposed Action	Alternative 2 Wells	Alternative 3 UV Disinfection	Alternative 4 Ozone Disinfect.	Alternative 5 Filtration	Alternative 6 No Action
6.1 Topography	no change 0	altered appearance	no change 0	no change 0	no change 0	no change 0
6.2 Geology	no change 0	possible change to cliff springs	no change 0	no change 0	no change 0	no change 0
6.3 Water Quality of Giant Springs and Cliff Springs	minor, temporary construction impact	minor, temporary construction impact	no change 0	no change 0	no change	no change 0
6.4 Water Supply of Giant Springs and Cliff Springs	no change	possible change to cliff springs	no change 0	no change 0	no change 0	no change 0
6.5.A Source Giant Springs	better water quality +	better water quality +	no change 0	no change 0	no change 0	no change 0
6.9 Wetlands	no change 0	possible drying of cliff springs wetland	no change 0	no change 0	no change 0	no change 0
6.10 Historic and Cultural Resources	impact to rock wall mitigitated; original appearance restored +	unknown impacts (not assessed) 0	unknown impacts (not assessed) 0	unknown impacts (not assessed) 0	unknown impacts (not assessed) 0	adverse impact due to continued deterioration of wall
6.11/6.12.A Parklands / Giant Springs State Park	temporary distrubance; maintain hatchery operation +	buildings would interfere with trail; aesthetics	no change 0	no change 0	no change 0	hatchery closure would adversely affect park users
6.12.B Statewide Fisheries Program	maintain recreation & economic benefits ++	maintain recreation & economic benefits	uncertain/untimely technology cannot ensure benefits 	uncertain/untimely technology cannot ensure benefits	uncertain/untimely technology cannot ensure benefits 	closure of hatchery would adversely statewide fisheries
6.14 OVERALL ASSESSMENT	+ 4	¹	- 2	-2	-2	- 5

7.0 SUMMARY and RECOMMENDATIONS

The discovery of whirling disease in the Missouri River, and the quickness with which it is spreading, makes it imperative that protection of the hatchery water supply is mandatory if the hatchery is to avoid becoming infected and inadvertently spreading the disease.

Five alternative methods of providing a safe water supply for the Giant Springs Hatchery (including one method which would protect the outside raceways and waste pond) were evaluated in this report. All of the disinfection and filtration treatment alternatives require a facility too large to fit in the vicinity of the existing pump station without obstructing truck access to the raceways or infringing significantly on the park and spring area.

A protected spring water supply, within the existing spring pool, is the recommended option for protecting the water supply to the Giant Springs Hatchery. (See Appendix A - Figure 3.) This option is the most cost effective and FWP is confident that it would provide a secure water source. Disturbance to the spring pool would occur during construction but these items can be corrected upon completion of the project. Mitigation can include covering the pipeline with appropriate cover to encourage aquatic vegetation to grow and obscure the pipe intrusion. Also, use of similar looking sandstone rock from local sources to reconstruct the wall along both sides of the existing viewing deck to provide an aesthetically pleasing design. The concrete intake will have a veneer of local sandstone rock to blend with existing rock textures and color, reducing the visual impact. Vegetation grows profusely in the spring and this growth is expected to render any structures in the spring very difficult to see.

Wells, disinfection, and filtration would require extra facilities to be built, extra pumps, and higher energy costs and maintenance. The well option would also require significant trenching across the park area to lay the required pipeline. Disinfection and filtration would also require detailed testing to insure the proper equipment was in place. As quickly as the disease is spreading downstream, FWP believes that there is not adequate time to fully test these other options before the hatchery becomes contaminated.

As mentioned above, a disadvantage of the protected spring water supply option is having to work in the spring pool area. Part of the public access around the spring area would have to be closed off during construction. The existing hand placed rock berm around the spring will have to be breached but will be restored upon completion of the project. The old berm has some historical significance but it was breached in 1984 for the hatchery renovation project. The height of the dam was also modified in that project to raise the pool level of the spring. The new collection vessel and pipelines can be constructed and camouflaged in a manner that would eventually blend in with the existing surroundings.

As indicated in Section 4.0, Decisions to be Made/Schedule, following public review of the draft EA under MEPA, FWP will reach a conclusion and issue a decision notice as to whether or not, due to the scope and nature of this project, an EIS would be required. The conclusion of this document is that due to the project's scope and nature, it will not have a significant impact upon the human environment, and, the preparation of an EIS is not be required.

Under NEPA, the federal reviewing agency, the USFWS Federal Aid office in Denver, Colorado, would distribute the EA to agencies and other interested parties. The USFWS would prepare and publish a Finding of No Significant Impact (FONSI) to indicate that an EIS under NEPA would not be required.

The engineering analysis and reports regarding alternative options are on file at the hatchery. Any person wishing to review these files may do so by contacting Bruce Chaney, Hatchery Manager, at the address or telephone number provided below in *Section 8.0*.

8.0 LIST OF PREPARERS

Primary Authors

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Bruce Chaney, Hatchery Manager, Phone 406-252-5734 Giant Springs State Fish Hatchery, Montana Fish, Wildlife & Parks 4801 Giant Springs Road, P.O. Box 2163, Great Falls, MT 59403

Additional FWP Contributors

Bobbi Keeler, Federal Aid Coordinator, Helena Ashley Schannauer, Legal Counsel, Helena Paul Valle, Landscape Architect, Helena

9.0 APPENDICES

Appendix A - Figures

Figure 1: Existing Hatchery Intake

Figure 2: Map of current known Whirling Disease Positive Sites

Figure 3: Schematic of Proposed Spring Water Supply Protection Area After Implementation

Figure 4: Area Map Showing Location of Hatchery in Relation to Surrounding Features

Figure 5: Site Locations for Well Option

Appendix B - Cultural Resource Documentation

1 - USFWS Letter to State Historic Preservation Office

giant.ea 5/27/97

APPENDIX A

FIGURE 1

EXISTING HATCHERY INTAKE

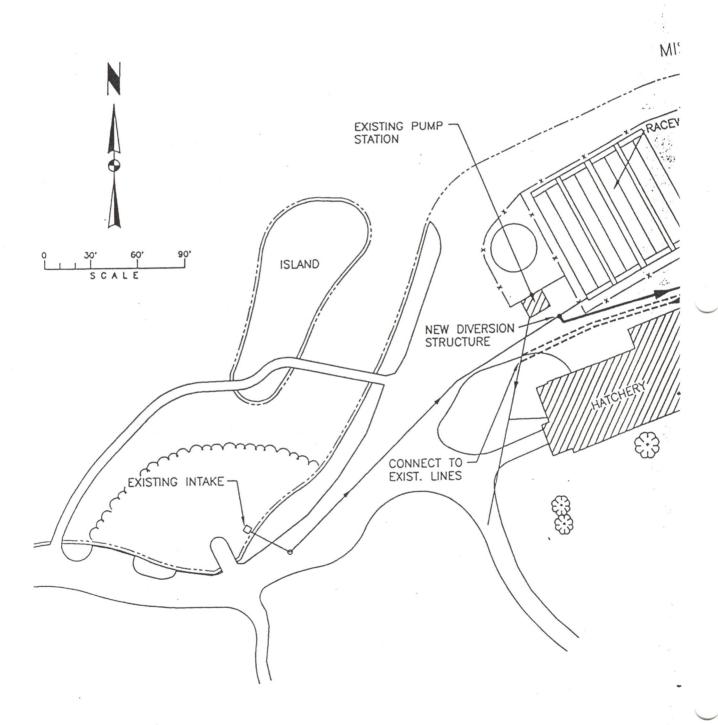


Fig. 1

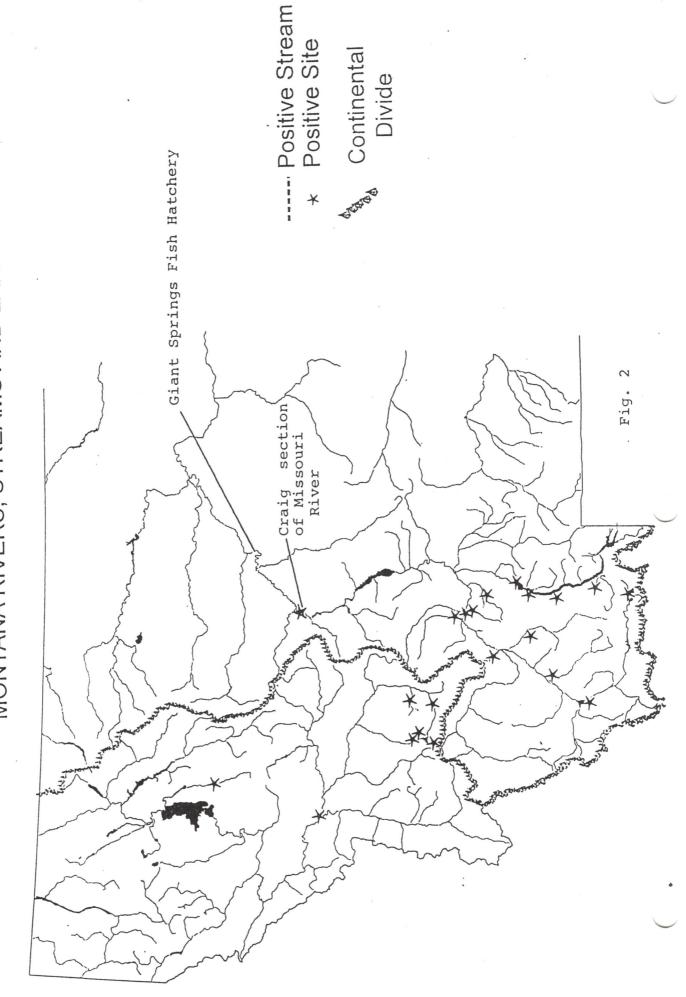
APPENDIX A

FIGURE 2

MAP OF WHIRLING DISEASE POSITIVE SITES

M. CEREBRALIS TESTING

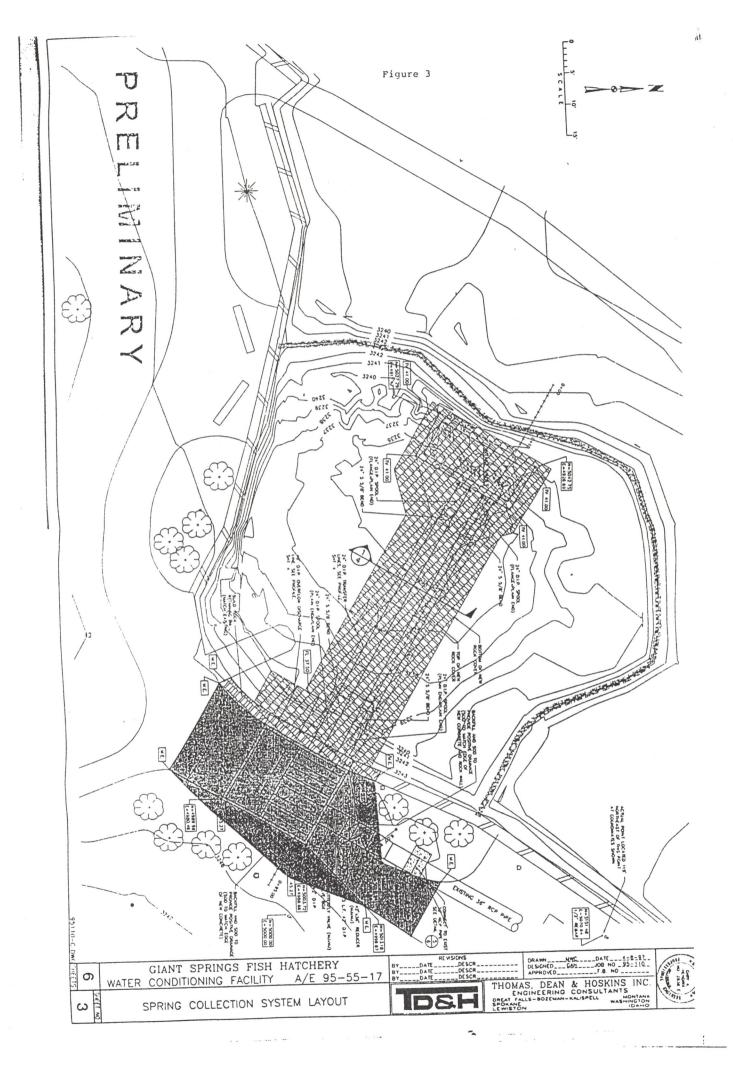
MONTANA RIVERS, STREAMS AND LAKES



APPENDIX A

FIGURE 3

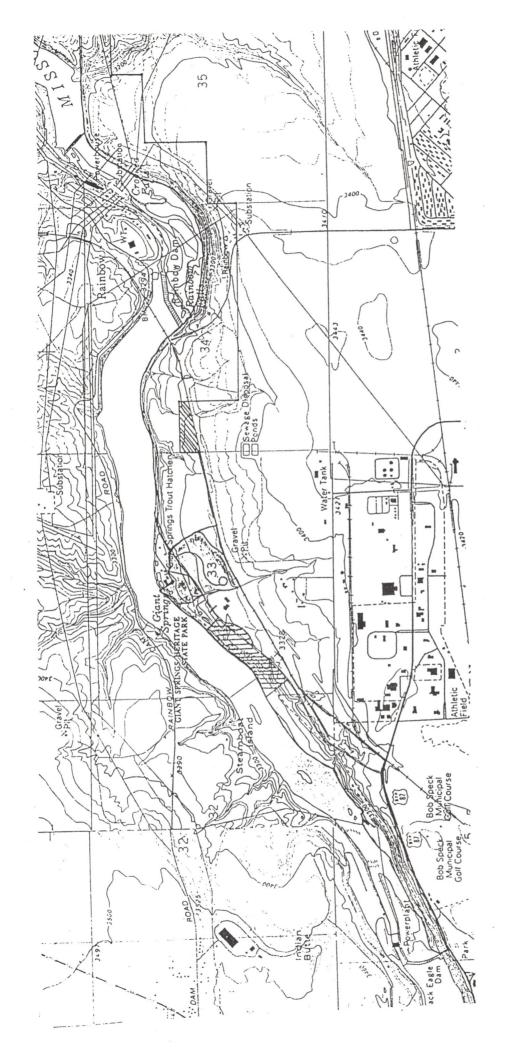
SCHEMATIC OF PROPOSED SPRING WATER SUPPLY PROTECTION AREA AFTER IMPLEMENTATION



APPENDIX A

FIGURE 4

AREA MAP SHOWING LOCATION OF HATCHERY IN RELATION TO SURROUNDING FEATURES



(5.15)

GIANT SPRINGS FEE AREA

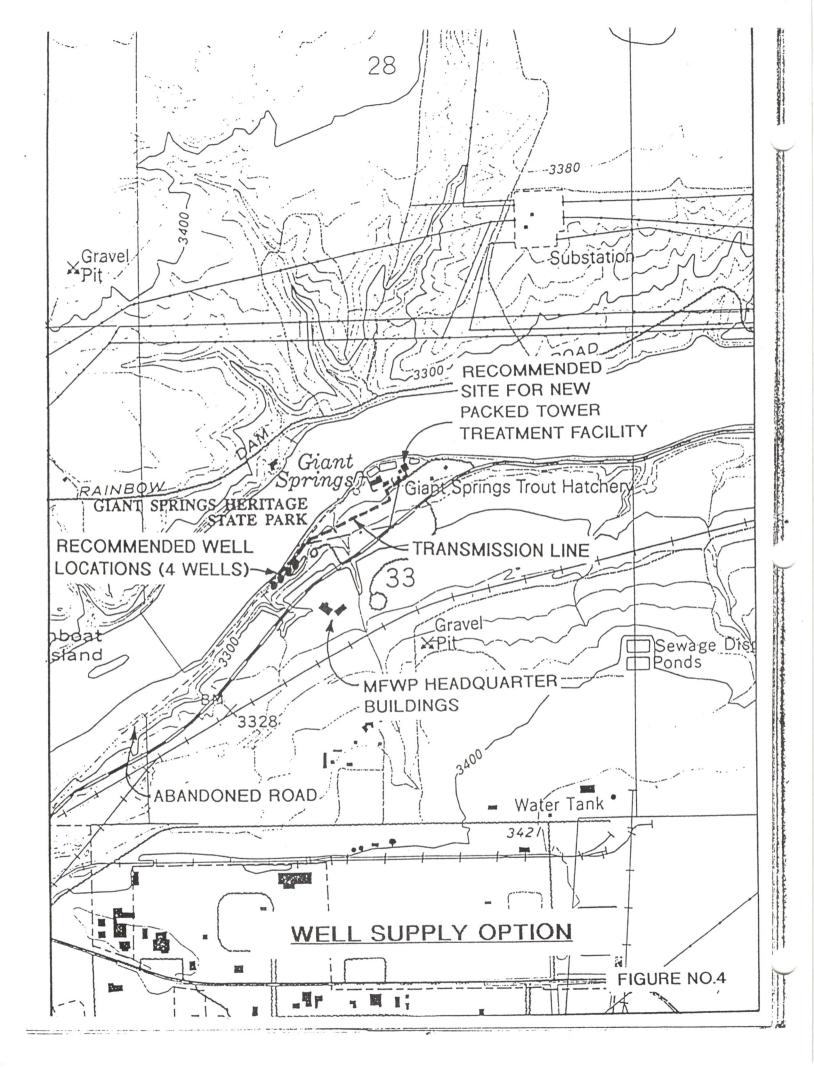
TITITITIES SOURCE GIANT SPRINGS INHOUNDES

Fig. 5

APPENDIX A

FIGURE 5

SITE LOCATIONS FOR WELL OPTION



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MAY 23 136PT. FISH, WILDLIFE & PARKS

DESIGN & CUNSTRUCTION
DEPT. OF FISH, WILDLIFE & PARKS

FWS/R6 CO/KA/NE/UT

MAY 2 0 1997

Mr. Paul Putz State Historic Preservation Officer Montana Historical Society P. O. Box 201202 Helena, Montana 59620-1202

Dear Mr. Putz:

The Fish and Wildlife Service. under the mandate of the Wildlife Restoration Act. is involved with developing a new water intake at the Giant Springs Hatchery in Great Falls, Montana. This system is necessary to prevent whirling disease from entering the Hatchery. The water intake project calls for laying 24-inch diameter pipes across the bottom of the pool area and camouflaging with rock. The intake vault near the west wall of the pool will blend into an existing rock shelf and will also be covered with rock. Both the pipeline and the new vault will be several feet below the water line. The current proposed scope of work will impact portions of the wall that were built in the 1970's and 1984 and the Civilian Conservation Corps/Works Progress Administration wall on the west side of the spring only. The rebuilding of the part of the WPA/CCC wall is not a direct impact of the water intake project but is proposed as a mitigative measure to provide a safe and consistent wall along both the south and west sides of the spring. The wall on the west side of the spring is badly deteriorated, and will fail if not rebuilt soon. Rebuilding this part of the wall under this project will be the most prudent course of action to preserve the integrity of the spring.

We reviewed the letter from your office dated February 10 to Paul Valle of the Montana Department of Fish. Wildlife and Parks (MDFWP). The Service and the MDFWP agree with your recommendation that the Giant Springs site (24CA620) is eligible for nomination to the National Register of Historic Places under criterion A for its association with the history of Great Falls and under criterion C for the Civilian Conservation Corps/Works Progress Administration structures.

The landscape design features of the area surrounding site 24CA620 are out of the area of effect and not within the scope of this project. The project, as proposed, will not impact the landscape. As part of the background documentation for the proposed project. MDFWP's Paul Valle, a landscape architect, researched the project

area. He was unsuccessful in finding any landscape plans of the park other than those done by MDFWP in the early 1970's. There are several plans of the Hatchery. One is dated 1950, the other is not dated but, based on the inclusion of the rock walls, likely shows the Hatchery between 1934 and 1950. A newspaper article from the Great Falls Tribune dated April 13, 1933, discussed landscaping being done at the park, but no plan of the improvements has been located. In Mr. Valle's professional opinion, the extent of the landscaping modifications done in the 1970's has impacted the integrity of the designed landscape, if, in fact, there ever was a designed landscape. Roads and parking lots were moved, rock walls removed, sidewalks installed, and buildings demolished. The remaining rock walls, some rock steps, the springs, and the trees are all that remain of the pre-1970 landscape.

In our opinion, the site does not meet eligibility under criterion B. Additional research at the Cascade County Historical Society and the City of Great Falls offices failed to establish any additional documentation of contributions or associations with the site by Gibson and Morony. The fact that both men held Giant Springs in high regard as an asset to the community is a reflection of the site's eligibility under criterion C. Better representations of these individuals' contributions to the community of Great Fall exist. The founding of the city of Great Falls in the case of Gibson and the Rainbow Hotel, and the first three dams at the falls of the Missouri are attributed to Morony.

Site 24CA620 is not a contributing element to the Great Falls Portage National Historic Landmark. The boundary justification section of the National Register of Historic Places Inventory Nomination Form for the Great Falls Portage National Historic Landmark states. "The period of significance was determined so that the acreage enclosed in the boundary corresponds specifically to the portage itself, and does not include additional scouting or survey trips along both riverbanks." Giant Springs is located 2½ to 3 miles north of the portage route and, although there is an association with the Lewis and Clark expedition, it does not meet the criteria of the designated Landmark.

In a letter dated March 7 the MDFWP consulted with the Blackfeet Cultural Program, Assinneboine Treaty Committee, Gros Ventre Treaty Committee, Chippewa-Cree Tribe, Pat Chief Stick, and the Salish/Kootenai Preservation Officer regarding traditional cultural values associated with Giant Spring and any impact on these values from the proposed project. We have had no response to these consultations.

It is our opinion that site 24CA620 is eligible for nomination to the National Register of Historic Places under criterion A for its association with the history of Great Falls and under criterion C for the CCC/WPA structures. The intake project and the replacement of the 1970s/1984 wall will be no adverse effect undertakings. Replacement of the CCC/WPA wall will be an adverse effect. We are requesting your concurrence with our determination.

The threat of whirling disease at the Hatchery instigated a construction start in September and completion by the end of the year per the direction of the Director of

Mr. Paul Putz

MDFWP and the Governor of Montana. Because of the urgency of this situation, we are requesting that you expedite your review.

Sincerely,

/s/ RHODA O. LEWIS

Rhoda Owen Lewis Regional Archaeologist

cc: Advisory Council on Historic Preservation

bcc: RO rf

Kristen Nelson
Paul Valle (MDFWP)

Rlewis

CO/KS/NE/UT/RLewis/1b/5-20-97

APPENDIX B

FIGURE 1

LETTER FROM RHODA O. LEWIS TO STATE HISTORICAL AND PRESERVATION OFFICE

APPENDIX B

FIGURE 2

STATE HISTORICAL AND PRESERVATION OFFICE LETTER OF CONDITIONAL AGREEMENT AND DRAFT MOU



Montana Historical Society Historic Preservation Office

1410 8th Avenue · PO Box 201202 · Helena, MT 59620-1202 · (406) 444-7715 · FAX (406) 444-6575

May 29, 1997

Ms. Rhoda Owen Lewis Regional Archaeologist Mountain-Prairie Region Fish and Wildlife Service P.O. Box 25486 - DFC Denver, Colorado 80225-0486

Dear Ms. Lewis:

We have received your letter responding to our questions regarding the National Register eligibility of The Giant Springs. We are pleased to be able to provide our expedited review of the proposed undertaking. Thank you for providing us with the additional information. Clearly, considerable research and careful evaluation were undertaken.

We concur in your determination that The Giant Springs is eligible for the National Register of Historic Places under Criterion A as a traditional cultural property important to the people of Great Falls and under Criterion C for the stonework representative of Civilian Conservation Corps/Works Progress Administration construction work. At this time, and for this project, we also concur that the necessary information is not available to reach a decision about eligibility under the other criteria issues we raised.

Your letter requests our concurrence in a finding of no adverse effect for the intake project and a finding of adverse effect for the CCC/WPA wall work. In accordance with 36CFR800, each undertaking is looked at in its entirety, and a single finding of effect is reached. Since we do not have construction documents for the proposed work on the wall, we hesitate reaching a finding of adverse effect at this time. If the wall is being removed, the finding is appropriate. If, however, the wall is being rehabilitated in accordance with the Secretary of the Interior's "Standards for the Treatment of Historic Properties," a conditional finding of no adverse effect may be appropriate.//

If you will provide me with a scope of work for the wall work, I'll respond immediately with our finding of effect.

Sincerely,

Len John

Historical Survey Reviewer

cc: Paul Valle, FWP

file: Giant Springs: FWP

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MAY 3 0 1997

DESIGN & CONSTRUCTION DEPT. OF FISH. WILDLIFE & PARKS.

MEMORANDUM OF AGREEMENT

Submitted to the Advisory Council on Historic Preservation

Pursuant to 36 CFR Part 800.6(a)

WHEREAS, the U.S. Department of the Interior, U.S. Fish and Wildlife Service (Service), proposes to provide financial assistance to the Montana Department of Fish, Wildlife and Parks (Montana Department) for construction of a new hatchery intake and for the renovation of historic rock walls at Giant Springs Park and Fish Hatchery, Federal Aid Project No.

WHEREAS, the Service has determined that the proposed project will have a conditional no adverse effect on Giant Springs, 24CA620, and has consulted with the Montana State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C.) 470 (f);

NOW, THEREFORE, the Service, and the Montana SHPO agree, and the Montana Department concurs, that the undertaking shall be implemented in accordance with the following stipulations in consideration of the effect this undertaking will have on the historic property.

Stipulations

The Service, in conjunction with the Montana Department, will ensure that the following measures are implemented:

- The SHPO reviews and concurs with the plans to rehabilitate the historic rock walls.
- The historic rock wall around the spring is reconstructed in the original style, reusing as much of the original rock as is suitable for use.
- 3) The "non-historic" portions of the Giants Springs wall will be removed and replaced with a rock wall comparable with the existing historic wall and the

reconstructed historic wall.

- 4) The proposed intake vault and associated piping will be screened and camouflaged to reduce the visual impacts on the spring.
- 5) During the implementation of this agreement, should the Montana SHPO object within 15 days to any of the plans or specifications pursuant to this agreement, the Montana Department shall consult with the SHPO to resolve the objection. If the Montana Department determines that the objection cannot be resolved, the Service shall forward all documentation relevant to the dispute to the Advisory Council (Council). Within 30 days after receipt of all pertinent documentation, the Council will either:
 - a) Provide the Service with recommendations, which the agency and the Montana Department will take into account in reaching a final decision regarding the dispute; or
 - b) Notify the Service that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the Service in accordance with 36 CFR 800.6© (2) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the Service responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

Execution of this Memorandum of Agreement by the U.S. Fish and Wildlife Service, Montana Department of Fish, Wildlife and Parks, and the Montana State Historic Preservation Office, its subsequent acceptance by the Advisory Council on Historic Preservation, and implementation of its terms, evidence that the Service has afforded the Council an opportunity to comment on the project and its effects on historic properties and has satisfied the requirements of the Section 106

of the National Historic Act (16 U.S.C. 470(f).

Approved: U.S. Fish and Wildlife Service

Executive Director

Ву:			Date	
_	Acting	Regional Director		
App	roved: Mont	ana State Historic Preservation Off	ice	
Ву:			Date:	
_	State	Historic Preservation Officer		
Con	curred: Mon	tana Department of Fish, Wildlife a	nd Parks	
By: -			Date:	
	Deputy Dire	ector		
Acce	epted: Advis	ory Council on Historic Preservation	n	
Ву:			Date:	12